Site: Gulfco Marine Maintenance

Location: 906 Marlin Ave, Freeport, Brazoria Co., TX

CERCLIS ID No: TXD055144539

Quad Map: Freeport, TX
Lat: 28° 58' 00.65" N
Long: 95° 17' 22.76" W

HRS Score: 50 (surface water migration pathway only)

1. PRPs
   - a. Owner/Operators:
     - i. Gulfco Marine Maintenance, Inc. (aka Gulfco, Inc.) - owned from 1971 to 1979
     - ii. Chromalloy American Corporation (Gulfco merged into Chromalloy effective 11/03/75)
     - iii. Sequa Corporation (Chromalloy's parent corp.)
     - iv. Fish Engineering & Construction, Inc.- purchased site 11/12/1979 & sold entire site except Lot 56 to Hercules on 1/20/89; KTI purchased Fish Engineering and formed KTI Fish; KTI Fish sold Lot 56 to Jack Palmer and Ron Hudson sometime in 1999.
     - v. Hercules Offshore Corporation - purchased site from Fish Engr on 1/20/89 except Lot 56; Hercules declared bankruptcy in **5/4/1998** & left site as described in the LT Report
     - vi. Parker Drilling Offshore Corporation
     - vii. **LDL Coastal, Inc.** (current owner of Lots 21 - 25, 55, 57, & 58) - purchased site through bankruptcy court on 8/2/1999
     - viii. **Jack Palmer & Ron Hudson** (current owners Lot 56)
   - b. Generators:
     - i. Dow

2. Site Operations
   - a. Clean and repair barges since the early 1970s
   - b. Barge cleaning and offshore platform construction (Fish Engr.)
   - c. Barge cleaning and refurbishing only (Hercules)
   - d. Barges contained:
     - i. crude oil
     - ii. chlorinated solvents
     - iii. alcohol
     - iv. ketones
     - v. hydrochloric acids
     - vi. fertilizers
   - e. LDL was cleaning up site in 2001 for future lease to a new tenant (SSI Report)

3. Setting:
    a. Lots 21 through 25 are approximately 4 acre parcels - primary facility - total about 20 acres
    b. Lots 55, 57, and 58 are 5 acre parcels total about 15 acres (excluding Lot 56)
    c. Located within 100 year coastal flood with velocity (wave action) area
    d. North bank of Intracoastal Waterway between Oyster Creek on east and the Old Brazos River channel and the Dow Barge Canal on the west - 2170 feet of frontage along waterway.
    e. Offshore Oil Services, Inc., located adjacent to Gulfco on the east (provides diesel fuel, drilling mud, chemical additives, and cement to offshore drilling rigs).
    f. Ground Water samples GW-06 and GW-09 between Gulfco impoundments and Offshore Oil Services found no migration from offshore Oil Services (no migration? Not ND?)
    g. Dow chemical is located in excess of 1 mile west-southwest of Gulfco
    h. No contaminant sources south of Gulfco across the Intracoastal Waterway and upwind of the prevailing wind direction.
    i. Contamination therefore results from on-site activities and not the result of deposition from off-site.
    j. Soils/Hydro-geology:
        i. South of Marlin Ave (Surfside Clay):
            1. Water table @ 2' during winter
            2. Saline clay to 72" bgs;
        ii. North of Marlin Ave:
            1. Water table @ 20" through most of year;
            2. Saline clay to 65" bgs;
        iii. Chicot Aquifer:
            1. About 1300' thick along the coast;
            2. Divided into an upper and lower unit by a clay layer;
            3. Upper Chicot from surface to a depth ranging from 100' to 300' bgs;
            4. Wells yield up to 2,500 gpm in Brazoria County;
        iv. Evangeline Aquifer:
            1. Underlays the Chicot Aquifer;
            2. About 2,200' thick along the coast;
            3. Fresh water found only in the upper part of the Evangeline, about 415' maximum
            4. Geologically similar and hydrologically connected to the Chicot Aquifer.

4. Release/Potential Source Areas:
    a. Soil staining throughout the main facility found during ECM assessments - no petroleum hydrocarbons reported in samples - staining may be black sandblasting material
    b. **AST Tank Farm** - total **(12)** product ASTs and **(4)** wash water ASTs

i. Used to store barge wash water after impoundments deactivated on 10/16/81
ii. Tank farm on the East side of site - (6) aboveground storage tanks (AST) contained 110,350 gals of barge wash water; LT suggested disposal at a permitted WW treatment facility- only **(1) AST** remains at the location, a second one was washed to near the office complex during a flood.
iii. **(1) AST** requires additional characterization to verify reactivity result;
iv. **(1) AST** has 2,300 gals chloroform which LT suggested can be recycled
v. **(7) AST** containing 38,508 gals water that did not exceed TCLP & LT suggested it can be treated and discharged
vi. **(2) areas** adjacent to tank farm w/ TPH in excess of TNRCC risk based screening levels (LT Site Characterization Report, 6/1999)
vii. Storm water within AST farm berms and inactive ASTs - LT suggests treating properly and discharging.
viii. No levees or containment dykes in 1989 during EPA site visit
ix. Currently has a concrete berm

c. Quonset Hut:
i. Contains numerous containers of various products
ii. Containers may become a source if not removed

d. Maintenance Building:

e. **Dry Dock Yard Slip Area:**
i. Solid waste trash & debris adjacent to dry dock - LT suggests disposal as solid waste
ii. Contains sandblasting dust & black sandblasting material - material analysis found possible elevated **beryllium**
iii. Second area id'd by ECM in 1998 & sampled from the north side of Martin Ave found possible elevated **beryllium on Lot 57**

f. **Fresh Water Ponds:**
i. LTE aerial photo survey concluded ponds were man-made between 1977 and 1987.
ii. Large pond (Lot 55): area about 48,000 SF; depth unknown; no COCs above regulatory limits in water & sediment samples (LT Report)
iii. Small pond (Lot 55 and vacant lot to the east of site): area about 10,000 SF; about 6" to 8" deep; no COCs above regulatory limits in water & sediment samples (LT Report)
iv. LTE collected one surface water sample from each pond and analyzed for VOCs; both samples were ND.

g. **Former Surface Impoundments**
i. (3) closed impoundments located in Lot 56,
1. Began operating in 1971
2. Earthen ponds with a natural clay liner
3. stored wash waters (consisting of organic and inorganic wash waters) from barge cleaning
4. barges contained waste oils, caustics, and organic chemicals
5. Impoundment 1: 0.34 ac (156' by 96')

6. Impoundment 2: 1.5 ac (330' by 197')
7. Impoundment 3: 0.32 ac (145' by 96')
8. Impoundments deactivated on 10/16/1981
9. Closed and covered by 8/18/1982 letter
10. Closure consisted of:
    (a) Removal of liquids
    (b) Removal of most of sludge
    (c) Solidifying remaining sludge w/ soil (100 CY solidified sludge left in place)
    (d) Cap w/ 3' clay cover
    (e) Installed "hard wearing surface" over clay cover

ii. Fish Engr installed (4) monitoring wells around impoundments during closure of impoundments
1. Screening between 38 - 48'
2. Sampled wells (4) times between 7/82 & 9/82
    (a) Benzene to 8,180 ppb
    (b) Phenol to 1,092 ppb
3. Wells plugged 12/1983

iii. Hercules installed (3) monitoring wells near impoundments in 1/1989
1. 18 foot wells
2. Found detectable (?) VOCs & pesticides
3. Wells not seen in 1/2000 SSI sampling event

iv. LTE installed (2) temp monitoring wells on west side of Lot 55
1. 8' deep
2. Installed in 1999
3. Located between former impoundments & lager fresh water pond
4. No VOCs detected

v. Soil samples in Lot 56 south of former impoundments
1. Collected in 1/2000 during SSI
2. No VOCs found (BUT, 0-6" & composite - not good for VOCs)
3. Metals above background

h. **Drum Storage Area:**

i. **(42) 55-gal drums** containing solids that exceed TCLP for VOCs (LT Report) - waste sludge with chlorinated solvents

ii. **(61) 55-gal drums** containing solids that can be disposed of as solid waste (LT Report)

iii. All drums had been removed from site at the time of the SSI sampling event.

i. Vacant Lots:

j. **Former Wash Water Storage Areas:**

i. Floating barges used to store barge wash water after impoundments deactivated on 10/16/1981

k. Site additional investigations (LT Report):

i. Surface soil: no metals or VOC impact above TNRCC screens

ii. Subsurface soil: no metals or VOC impact above TNRCC screens
iii. Surface water: no metals or VOC impact above TNRCC screens
iv. Ground water: no metals or VOC impact above TNRCC screens

l. Lot 56: Hercules did not purchase Lot 56 from Fish Engr due to potential environmental impacts from the three surface ponds

SOIL/SEDIMENT SAMPLES

LOCATION	SAMPLE	DEPTH	ND	DETECTS	SCREENING		Back

				(mg/kg)	IND	RES	Ground
	LTE 2/22/99	Black sandblasting material		Be - 0.14	2,200	150	
	B-1 (SCR)	0-6"		As - 6.05	1.8	0.39	3.1 - 4.9
				Ba - 112	79,000	5500	
				Cr - 34	500	210	
				Pb - 130	1,400	400	
				Hg - 0.16	340	23	
Sandblasting Area near dry dock	SO-01 (SSI)	0-6" composite sample	VOCs, pest,	Phenanthrene - 0.25 J	na	na	
				Fluoranthene - 0.58 J	24,000	2,300	
				Pyrene - 0.46 J	32,000	2,300	
				Benzo(a)anthracene - 0.29 J	2.3	0.62	
				Chrysene - 0.40 J	230	62	
				bis(2-ehylhexyl)phthalate - 2.6 J	140	35	
				Benzo(b)fluoranthene - 0.38 J	2.3	0.62	
				Benzo(k)fluoranthene - 0.033 J	23.0	6.2	
				Benzo(a)pyrene - 0.36 J	**0.23**	**.062**	
				Indeno(1,2,3-cd)pyrene - 0.36 J	2.3	0.62	
				Benzo(g,h,i)perylene - 0.45 J	na	na	
				Al - 4350	100,000	76,000	
				As - 1.9	1.8	0.39	3.1 - 4.9
				Ba - 269	79,000	5500	
				Cr - 13.5	500	210	
				Pb - 17.3	1,400	400	
				Mn - 85.6 J	35,000	3,200	
				V - 8	7,900	550	
				Zn - 368	100,000	23,000	

LOCATION	SAMPLE	DEPTH	ND	DETECTS (mg/kg)	SCREENING		Back Ground
					IND	RES	
Sandblasting Area near quonset shop	B-2 (SCR)	0-6"		As - 1.57	1.8	0.39	3.1 - 4.9
				Ba - 390	79,000	5500	
				Cr - 14.9	500	210	
				Pb - 43.3	1,400	400	
		3'		As - 1.75	1.8	0.39	3.1 - 4.9
				Ba - 429	79,000	5500	
				Cr - 15.0	500	210	
				Pb - 46.8	1,400	400	
	SO-02 (SSI)	0-6" composite	pest	methylene chloride - .006 J	22	8.9	0.006 in 1 of 3 BG samples
				bis(2-ehylhexyl)phthalate - 0.4	140	35	0.046 in 1 of 3 BG samples
				Al - 9090	100,000	76,000	
				As - 1.5	1.8	0.39	3.1 - 4.9
				Ba - 271	79,000	5500	
				Cr - 14.9	500	210	
				Pb - 11.9	1,400	400	
				Mn - 90.3 J	35,000	3,200	
				V - 15.9	7,900	550	
				Zn - 1150	100,000	23,000	

LOCATION	SAMPLE	DEPTH	ND	DETECTS (mg/kg)	SCREENING		Back Ground
					IND	RES	
Fresh Water Pond Area	SS-5 (sediment) (SCR)	0-6"	TPH, rest of full VOC suite	As - 1.84			
				Ba - 67.1			
				Cr - 7.14			
				Pb - 5.92			
				Toluene- .0027			
	SS-6 (sediment) (SCR)	0-6"	TPH, full VOC suite	As - 1.91			
				Ba - 55.7			
				Cr - 6.49			
				Pb - 6.68			
	B-7 (SCR)	3'	TPH, full VOC suite	na			
	B-8 (SCR)	3'	TPH, full VOC suite	na			

LOCATION	SAMPLE	DEPTH	ND	DETECTS (mg/kg)	SCREENING		Back Ground
					IND	RES	
				methylene chloride - .008 J	22	8.9	0.006 in 1 of 3 BG samples
				bis(2-ehylhexyl)phthalate - 0.084 J	140	35	0.046 in 1 of 3 BG samples
				Al - 26,600	100,000	76,000	
				As - 6.3	1.8	0.39	3.1 - 4.9
				Ba - 247	79,000	5500	
				Cr - 27.6 J	500	210	
				Pb - 22.7	1,400	400	
				Mn - 962	35,000	3,200	
				V - 41	7,900	550	
	SO-07 (SSI)	0 - 6"	pest	Zn - 86.2 J	100,000	23,000	
				methylene chloride - .005 J	22	8.9	0.006 in 1 of 3 BG samples
				bis(2-ehylhexyl)phthalate - 0.060 J	140	35	0.046 in 1 of 3 BG samples
				Al - 6,520	100,000	76,000	
				As - 2.1	1.8	0.39	3.1 - 4.9
				Ba - 105	79,000	5500	
				Cr - 17.1 J	500	210	
				Pb - 46.4 J	1,400	400	
				Mn - 168	35,000	3,200	
Adjacent to Former Surface Impoundments				V - 13	7,900	550	
	SO-08 (SSI)	0 - 6"	pest	Zn - 92.9 J	100,000	23,000	

LOCATION	SAMPLE	DEPTH	ND	DETECTS (mg/kg)	SCREENING		Back Ground
					IND	RES	
	B-9 (SCR)	not reported					
	B-10 (SCR)	3'	full SVOC suite, rest of full VOC suite	TPH - 792	TX-310		
				EB-.0066	230	230	
				IPB-.0026	580	370	
				N-.0611	210	120	
				1,2,4-TMB-.0022	190	52	
				Xylene-.0077	210	210	
	B-11 (SCR)	not reported					
	SS-8 (SCR)	0-6"	full VOC suite	TPH - 200			
AST Farm Area & Former Drum Storage Area	SO-03 (SSI)	0-6" (former drum storage area)		methylene chloride - 0.017	22	8.9	0.006 in 1 of 3 BG samples
				Fluoranthene - 0.073 J	24,000	2,300	
				Pyrene -0.071 J	32,000	2,300	
				Chrysene - 0.043 J	230	62	
				bis(2-ehylhexyl)phthalate-0.061 J	140	35	0.046 in 1 of 3 BG samples
				Benzo(b)fluoranthene -.049 J	2.3	0.62	
				Indeno(1,2,3-cd)pyrene -.063 J	2.3	0.62	
				Benzo(g,h,i)perylene -.079 J	na	na	
				Dieldrin -0.0062	0.12	0.03	
				Aroclor 1254 - 0.034 J	0.83	0.22	
				Al - 10,900	100,000	76,000	
				As -3.8	1.8	0.39	3.1 - 4.9
				Ba - 266	79,000	5500	
				Cr - 14.8	500	210	
				Pb - 18.5	1,400	400	
				Mn - 265 J	35,000	3,200	
				V - 18.2	7,900	550	

LOCATION	SAMPLE	DEPTH	ND	DETECTS	SCREENING		Back
				Zn - 124	100,000	23,000	

LOCATION	SAMPLE	DEPTH	ND	DETECTS (mg/kg)	SCREENING		Back Ground
					IND	RES	
AST Farm Area & Former Drum Storage Area (Cont)	SO-05 (SSI)	0" - 6"	SVOC	methylene chloride -0.025 J	22	8.9	0.006 in 1 of 3 BG samples
				4,4'-DDE - 0.004 J	7.8	1.7	
				endrin - 0.004 J	210	18	
				Al - 7,870	100,000	76,000	
				As -3.6	1.8	0.39	3.1 - 4.9
				Ba - 371	79,000	5500	
				Cr - 24 J	500	210	
				Pb - 65.7 J	1,400	400	
				Mn - 292	35,000	3,200	
				V - 15.7	7,900	550	
				Zn - 416	100,000	23,000	

LOCATION	SAMPLE	DEPTH	ND	DETECTS (mg/kg)	SCREENING		Back Ground
					IND	RES	
Maintenance Buildings	B-12 (SCR)	not reported					
	B-13 (SCR)	not reported					
	B-14 (SCR)	3'	full VOC suite	na			

LOCATION	SAMPLE	DEPTH	ND	DETECTS	SCREENING	Back

				(mg/kg)	IND	RES	Ground
Electrical Building	SS-7 (SCR)	0-6"	PCB	na			

LOCATION	SAMPLE	DEPTH	ND	DETECTS (mg/kg)	SCREENING		Back Ground
					IND	RES	
	B-5 SCR	3'	rest of full VOC suite	TPH - 61.1			
				1,2-DCA - .002	0.84	0.35	
				IPB - .0074	580	370	
	B-6 SCR	not reported					
Former Wash Water AST	SO-04 SSI	0" - 6"		methylene chloride -0.013	22	8.9	0.006 in 1 of 3 BG samples
				bis(2-ehylhexyl)phthalate -0.22 J	140	35	0.046 in 1 of 3 BG samples
				dieldrin - 0.015 J	0.12	0.03	
				4,4'-DDE - 0.0089 J	7.8	1.7	
				4,4'-DDD - 0.0064 J	11	2.4	
				4,4'-DDT - 0.015 J	7.8	1.7	
				endrin ketone - 0.013 J	na	na	
				endrin aldehyde - 0.018 J	na	na	
				alpha-chlordane - 0.0084	na	na	
				gamma-chlordane - 0.02	na	na	
				Aroclor-1254 - 0.15	0.83	0.22	
				Al - 6,900	100,000	76,000	
				As - 2.6	1.8	0.39	3.1 - 4.9
				Ba - 1,510	79,000	5500	
				Cr - 18.7	500	210	
				Pb - 79	1,400	400	
				Mn - 207 J	35,000	3,200	
				V - 14.6	7,900	550	
				Zn - 580	100,000	23,000	

LOCATION	SAMPLE	DEPTH	ND	DETECTS (mg/kg)	SCREENING		Back Ground
					IND	RES	
NE Quadrant Area	B-3 SCR	3'	rest of full VOC suite	TPH - 23.8			
				1,2-DCA - .0024	0.84	0.35	
	B-4 SCR	3'	full VOC suite	TPH - 11.7			

LOCATION	SAMPLE	DEPTH	ND	DETECTS (mg/kg)	SCREENING		Back Ground
					IND	RES	
Block 57	SS-4 SCR	0-6"		As - 2.19	1.8	0.39	3.1 - 4.9
				Ba - 95.4	79,000	5500	
				Cr - 8.76	500	210	
				Pb - 48.6	1,400	400	
Block 58	SS-3 SCR	0-6"		As - 1.99	1.8	0.39	3.1 - 4.9
				Ba - 133	79,000	5500	
				Cr - 5.17	500	210	
				Pb - 54.3	1,400	400	

LOCATION	SAMPLE	DEPTH	ND	DETECTS (mg/kg)	SCREENING		Back Ground
					IND	RES	
Lot 57/58 From area bare of vegetation; north of Marlin Ave; no	SO-06 SSI	0-6"		methylene chloride - 0.006 J	22	8.9	0.006 in 1 of 3 BG samples
				Phenanthrene - 2.5	na	na	

LOCATION	SAMPLE	DEPTH	ND	DETECTS	SCREENING		Back
record on former usage of this area				Fluoranthene - 5.1	24,000	2,300	
				Pyrene - 4.4	32,000	2,300	
				Benzo(a)anthracene - 2.4	**2.3**	**0.62**	
				Chrysene - 2.8	230	62	
				Benzo(b)fluoranthene -2.7	**2.3**	**0.62**	
				Benzo(k)fluoranthene - 2.5	23	6.2	
				Benzo(a)pyrene - 2.6	**0.23**	**0.062**	
				Indeno(1,2,3-cd)pyrene - 2.2	**2.3**	**0.62**	
				Benzo(g,h,i)perylene - 2.4 J	na	na	
				dieldrin - 0.099 J	0.12	0.03	
				4,4'-DDE - 0.005 J	7.8	1.7	
				4,4'-DDD - 0.0079 J	11	2.4	
				4,4'-DDT - 0.0074 J	7.8	1.7	
				Aroclor-1254 - 0.07	0.83	0.22	
				Al - 2,360	100,000	76,000	
				As -2.7	1.8	0.39	3.1 - 4.9
				Ba - 159	79,000	5500	
				Cr - 21.6 J	500	210	
				Pb - 221 J	1,400	400	
				Mn - 194	35,000	3,200	
				V - 6.6	7,900	550	
				Zn - 431 J	100,000	23,000	

LOCATION	SAMPLE	DEPTH	ND	DETECTS	SCREENING	Back

				(mg/kg)	IND	RES	Ground
				phenanthrene- 1.20			ND (0.49)
				fluoranthene - 2.0			ND (0.49)
				pyrene - 2.0			ND (0.49)
				bis(2-ethylhexyl)phthalate - 1.2			0.15 J (0.460 DL)
				gamma-chlordane - 0.0055			ND (0.0026)
				Aroclor 1254 - 0.027 J			ND (0.05)
				Pb - 46.8			12.6
Barge Slip 1	SE - 08	0-6" sediment		Zn - 314			54.4
				phenanthrene- 0.350 J			ND (0.49)
				fluoranthene- 0.60 J			ND (0.49)
				pyrene - 0.64 J			ND (0.49)
				bis(2-ethylhexyl)phthalate - 0.24 J			0.15 J (0.460 DL)
				heptachlor epoxide - 0.0038			ND (0.0026)
				Aroclor 1254 - 0.023 J			ND (0.05)
				Pb - 27.9			12.6
Barge Slip 2	SE- 09	0-6" sediment		Zn - 130			54.4
				bis(2-ethylhexyl)phthalate - 0.11 J			0.15 J
				Pb - 21.8			12.6
	SE - 10	0-6" sediment		Zn - 220			54.4
				bis(2-ethylhexyl)phthalate - 0.55 J			0.15 J (0.460 DL)
				Pb - 32.8			12.6
East of Barge Slip 2	SE - 11	0-6" sediment		Zn - 37.8			54.4

GROUND WATER DATA

LOCATION	DATE	DEPTH	ND	DETECTS	MCL/Tap Water	Back Ground
				mg/L		
4 monitoring wells for closure of impoundments	July-Sept 1982	38' - 48'		**benzene - to 8.18**	**0.005**	
				phenols - to 1.092	11.0	
MW1, S of Marlin Ave.	3/16/99 SCR		full VOC suite	Al -0.246 J	37 (tap)	nd (0.1)
				Mn - 7.93 J	**1.7 (tap)**	**0.015**
				Ni - 0.0022	0.100	nd (0.020)
MW2, S of Marlin Ave.	"		full VOC suite	Al - 16.2	37 (tap)	nd (0.1)
				Be - 0.0012	0.004	nd (0.002)
				Cr - 0.0146	0.100	nd (0.002)
				Pb - 0.0146	0.015	nd (0.002)
				Mn - 2.93 J	**1.7 (tap)**	**0.015**
				Ni - 0.0253	0.100	nd (0.020)
				V - 0.0356	0.260	nd (0.030)
				Zn - 0.0258	11	0.056
MW3, S of Marlin Ave.	"	TD from 15' to 20'	full VOC suite	**Al - 77.0**	**37 (tap)**	**nd (0.1)**
				Be - 0.006	**0.004**	**nd (0.002)**
				Cr - 0.0854	0.100	nd (0.002)
				Co -0.0722	na	nd (0.020)
				Pb - 0.0945	0.015	nd (0.002)
				Mn - 5.14 J	**1.7 (tap)**	**0.015**
				Ni - 0.155	**0.100**	**nd (0.020)**
				V - 0.142	0.260	nd (0.030)
				Zn - 0.279	11	0.056
GW4	3/18/99 SCR		full VOC suite			
GW5	"		rest of full VOC suite	acetone - 0.256	0.61 (Tap)	

LOCATION	DATE	DEPTH	ND	DETECTS	MCL/Tap Water	Back Ground
GW6	"		full VOC suite	As - 0.01	0.01 (MCL)	
				Ba - 0.067	2	
				Cr - 0.014		
GW7	"		full VOC suite	none		
GW8	"	8'	full VOC suite	none		
GW9	"	8'	full VOC suite	none		

LOCATION	DATE	DEPTH	ND	DETECTS	MCL/Tap Water	Back Ground
				mg/L		
				As - 0.0777	**0.010**	**0.0091 - 0.0102**
				Co - 0.0669	na	0.0174
				Pb - 0.0947	**0.015**	**0.0244**
				Mn - 8.46	**1.7**	**1.36 - 2.81**
				Ni - 0.217	**0.100**	**0.0108 - 0.0468**
GW-01	1/25/01	10 - 20'		V - 0.196	0.260	0.0161 - 0.0649
				As - 0.0102	0.010	0.0091 - 0.0102
				Pb - 0.0203	0.015	0.0244
				Mn - 2.01	1.7	1.36 - 2.81
				Ni - 0.0309	0.100	0.0108 - 0.0468
GW-02	"	14 - 24'		V - 0.0537	0.260	0.0161 - 0.0649
				As - 0.0426	**0.010**	**0.0091 - 0.0102**
				Mn -14.1	**1.7**	**1.36 - 2.81**
				Ni - 0.0172	**0.100**	**0.0108 - 0.0468**
GW-03	"	14 - 24'		V - 0.0144	0.260	0.0161 - 0.0649
				As - 0.0706	**0.010**	**0.0091 - 0.0102**
				Co - 0.0606	na	0.0174
GW-04	"	10 - 20'		**Pb - 0.0864**	**0.015**	**0.0244**

LOCATION	DATE	DEPTH	ND	DETECTS	MCL/Tap Water	Back Ground
				Mn - 8.66	**1.7**	**1.36 - 2.81**
				Ni - 0.216	**0.100**	**0.0108 - 0.0468**
				V - 0.178	0.260	0.0161 - 0.0649

BACKGROUND GROUND WATER SAMPLES (OFF-SITE)

LOCATION	DATE	DEPTH	ND	DETECTS	MCL/Tap Water	Back Ground
				mg/L		
GW-01 Blue Water Courts	1/26/00		all VOCs; Remaining SVOCs; all pest/PCB; remaining metals	bis(2-ethylhexyl)phthalate - 0.0212		
				An - 0.0038	0.006	
				As -0.0142	0.010	
				Ba - 0.446	2.0	
				Mg - 17.3	na	
				Mn - 0.012	1.7	
				Se - 0.0043	0.050	
				Zn - 0.028	11.0	
GW-02 Blue Water Courts (dup of GW-01)	"		all VOCs; all SVOCs; remaining pest/PCB; remaining metals	lindane - 0.000005	0.0002	
				As -0.0142	0.010	
				Ba - 0.447	2.0	
				Mg - 17.2	na	
				Mn - 0.013	1.7	
				Se - 0.0047	0.050	
				Zn - 0.026	11.0	

LOCATION	DATE	DEPTH	ND	DETECTS	MCL/Tap Water	Back Ground
				mg/L		
GW-03 Dow Chem	1/26/00		remaining VOCs; remaining SVOCs; all pest/PCB; remaining metals	chloroform - 0.0231		
				bromodichloromethane - 0.0225		
				dibromochloromethane - 0.0175		
				bromoform - 0.0054		
				bis(2-chloroisopropyl)ether-0.0034		
				As -0.0061	0.010	
				Ba - 0.303	2.0	
				Mg - 15.2	na	
				Mn - 0.015	1.7	
				Se - 0.0035	0.050	
				Zn - 0.056	11.0	
GW-04	1/26/00		all VOCs; all SVOCs; all pest/PCB; remaining metals	As -0.0139	0.010	
				Ba - 0.434	2.0	
				Mg - 20.4	na	
				Mn - 0.030	1.7	
				Se - 0.0046	0.050	
				Zn - 0.108	11.0	
GW-05	1/26/00		all VOCs; all SVOCs; all pest/PCB;	As -0.0053	0.010	
				Ba - 0.285	2.0	

LOCATION	DATE	DEPTH	ND	DETECTS	MCL/Tap Water	Back Ground
			remaining metals	Mg - 21.9	na	
				Mn - 0.020	1.7	
				Se - 0.0055	0.050	
			all VOCs; all SVOCs; all pest/PCB; remaining metals	As -0.0239	0.010	
				Ba - 0.370	2.0	
				Mg - 25.0	na	
				Mn - 0.037	1.7	
GW-06	1/26/00			Se - 0.0059	0.050	

5. Contaminates:
   a. Ground water - no priority pollutants above regulatory standards in 3 existing monitoring wells (ECM sampling)

6. Migration Pathways
   a. Migration routes
      i. Ground water:
         1. flow to the southeast
      ii. Surface water:
         1. Ground surface is generally level
         2. Southern part apparently drains to south into Intracoastal Waterway
         3. North of Marlin Ave apparently drains into adjacent wetlands, then (about 0.48 miles away) to Oyster Bayou; and/or drains to the south to a drainage ditch north of Marlin Ave - the ditch then flows into the Intracoastal Waterway near the Hwy 332 bridge over the Intracoastal.
   b. Fate and transport

7. Potential Receptors:
   a. Intracoastal Waterway
      i. **As per the HRS system, if chemical with a bio-accumulation potential of 500 or greater is present in sediment at a level that meets the criteria for an observed release, then the watershed is considered to be subject to actual human food chain contamination.** Sediment samples SE-08 and SE-10 meet the criteria for an observed release & have chemicals with bio-accumulation factors of 500 or greater (fluoranthene; pyrene; bis(2-ethylhexyl)phthalate; gamma-chlordane; lead; and zinc).
      ii. Intracoastal Waterway is considered a fishery.
   b. Wetlands
      i. The nearest wetland is 500' south of Gulfco across the Intracoastal Waterway (what about area north of Gulfco?)
   c. Water supply wells

i. closest water supply well was at the public marina on the west adjacent property - was used until 1984; well was 199' deep with a water table at 63'
ii. (2) City of Surfside Beach wells:
1. @ 118 Sword Fish, Surfside, TX.
2. TNRCC #s 0200037G (west well) and 0222237H
3. 0.92 miles southeast of site near Hwy 332 bridge over Intracoastal Waterway;
4. TNRCC inspection report says each is 300' deep, but system operator says west well is 250' deep.
iii. City of Surfside Beach public water system (TNRCC ID No. 0200037) has (8) wells located within 2 miles of Gulfco; the wells are completed between 250' and 500'; the system serves 734 persons.
iv. SSI Report did not evaluate the drinking water threat because of a lack of targets.

d. Surface water intakes
i. City of Freeport gets water from reservoirs 15 miles north of site

e. Ecological receptors
i. Endangered or threatened species

8. Preliminary Remediation Levels (PRGs)
a. ARARs:

9. Risk management/Remediation
a. Risk evaluation:
b. Interim measures:
c. Source control:
d. Remediation actions:
e. Performance monitoring provisions/locations:
f. Contingency plans if monitoring criteria are exceeded: